

REMARKS

Accompanying this amendment is an Information Disclosure Statement bringing to the Examiner's attention three references which were cited but not made of record in the parent of this divisional application, Application No. 10/824,222. It is respectfully requested that the Examiner make these references of record in this application. The references listed in the accompanying Information Disclosure Statement were cited in an International Search Report as relevant to some of the original claims of this application, but the claims as amended in the parent application, as well as the claims as amended herein, are all fully distinguished from these references.

It is respectfully requested that the Examiner confirm in the next communication that she has considered all of the prior art of record in the co-pending parent application No. 10/824,222, as provided in MPEP 2001.06(b). Copies of the lists of references cited in that application are enclosed herewith for the Examiner's convenience.

In the current Office Action, the Examiner has rejected claims 13 to 16 and 18 as obvious in view of Yamada (US 4535990) and Niskanen (US 5342812). This rejection is hereby traversed, and it is submitted that amended claim 13 is distinguished from these references, along with claims 15, 16 and 18 which depend from claim 13 (claim 14 has been canceled since the subject matter of this claim is now incorporated in claim 13).

In the primary reference, Yamada, the entire club head (sole plate and body) is made of fiber reinforced plastic material. Suitable materials for the club head 1 (face 2, top 3, sole 4, toe 5, heel 6, and back 7) are listed in column 2, lines 32 to 37, and include "plastics ...with 20 to 60 percent weight addition of reinforcement fibers...such as carbon fiber or glass fiber...". The sole plate is fixed to the body with tap screws 14 and is made of fiber reinforced plastic material, as described in column 2, line 65 to column 3, line 5. The reinforcement fibers in the sole plate are also said to be of 20 to 60 weight percent. The metal tap screws will add to the weight of the sole plate, and also form part of the sole plate. Therefore, the sole plate in Yamada is not formed

entirely from a single material, but instead comprises both fiber reinforced plastic material and metal.

Referring to amended claim 1, Yamada does not suggest injection molding the body of the club head of a different material than the sole plate, let alone selecting a material for the sole plate which is of lighter weight than the material of the body, so that the center of gravity is raised. As stated on page 7, paragraph 0022, lines 3 to 8 of this application, "The lighter sole plate will produce a higher center of gravity, which in turn will produce a lower golf ball trajectory. This means that the golfer can use a club head with a higher loft angle, reducing the number of errant shots, instead of having to use a lower loft club to overcome the high trajectory result of a conventional, metal sole plate."

This invention goes in the opposite direction to the prior art in the golf industry, such as Yamada, going from adding weight to the sole plate so as to lower the center of gravity to the concept of choosing a lighter weight material for the sole plate, and making the entire sole plate of that material without using separate metal screws or fasteners which will add weight, with the end result being a higher center of gravity than a traditional club head. The standard approach of adding weight to the sole plate has the effect of raising the trajectory. The notion of a heavier sole plate, such as the metal sole plate, has always been the industry standard, and people using lighter materials would normally add weight to that material in order to lower the center of gravity and achieve a higher trajectory.

The present invention recognizes that a higher trajectory is not necessarily desirable for all golfers, particularly experienced golfers who do not want or need to hit the ball higher. To get the desired trajectory, such golfers often have to go to a flatter striking face, such as seven degrees. Flatter faces create the problem that it is harder to hit the ball straight. By using a head with a higher center of gravity, the golfer can use a higher loft angle, such as a nine or ten degree loft, and gain control while still getting an acceptable trajectory. This club head with a lighter sole plate also allows poor golfers to achieve greater accuracy, allowing them to use a club head with a higher loft angle.

Yamada clearly does not recognize or suggest the desirability of forming a sole plate of a different, lighter weight material in order to raise the center of gravity of the club head. Instead, Yamada follows the conventional line of "lightening" of the head weight (see column 2, lines 65 to 66), presumably so as to lower the center of gravity. This reference clearly does not suggest making a sole plate of lighter or different material from the body, let alone making the sole plate entirely from glass fiber reinforced polyphenylene sulfide or PPS.

In a typical prior art club head with a metal sole plate, the sole plate weight may represent around 25% of the total head weight. With the club head of this invention, replacement of the metal sole plate with a sole plate made entirely of glass fiber reinforced PPS results in a substantial reduction in the sole plate weight to around 16.3% of the total head weight.

Yamada neither teaches nor suggests making a sole plate entirely out of glass fiber reinforced PPS and molding the body out of ceramic composite material. Instead, the body and sole plate in Yamada are made out of essentially the same plastic material, which is not glass fiber reinforced PPS. Yamada does not suggest making the sole plate out of a lighter material so as to raise the center of gravity.

The Examiner contends that it would have been obvious for one reading Yamada to select a ceramic composite material for the body, since such is a known alternative to a plastic composite, as taught by Niskanen. However, in Yamada the entire club head, both body and sole plate, is made from a single, plastic composite material and there is no reason or advantage suggested by the teachings of either Yamada or Niskanen to change the material of only one part of Niskanen's club head. It is not permitted, in making an obviousness rejection, to take only isolated teachings from a reference and ignore teachings which would lead away from the claimed invention. Instead, the references must be considered as a whole, including portions which would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.* There is nothing in the teachings of Yamada, Niskanen or any other reference to motivate one skilled in the field to make the entire sole plate of a material which is lighter in weight

than the remainder of the club head, in order to raise the center of gravity.

In Yamada, the sole plate and body are made of a fiber reinforced plastic. Yamada does not describe or suggest glass fiber reinforced PPS as a sole plate material. In Niskanen, the club head is made substantially entirely of composite material which may be a metal matrix composite material or a ceramic matrix composite material, or may have any component made out of composite material with the other components made out of commercially available materials and/or composite materials. There is absolutely no suggestion in Niskanen of making a sole plate out of a lighter material so as to raise the center of gravity of the club head, nor any suggestion of a sole plate entirely out of the material defined in amended claim 13 combined with a body of ceramic composite material.

There is nothing in the teachings of Niskanen which would motivate one skilled in the field to replace only the body of the club head in Yamada with a body made of ceramic composite material. This would be contrary to Yamada's teachings regarding lightening of the club head, since the ceramic composite material will be heavier than the described fiber reinforced plastic material. Neither Niskanen nor Yamada suggest a sole plate of glass fiber reinforced PPS combined with a body of injection molded, ceramic composite material, thereby raising the center of gravity of the club head.

It is well established that, for a proposed combination of references to be obvious, three criteria must be met (see MPEP 2142). First, there must be some suggestion or motivation in the references themselves or the prior art as a whole to combine them. Second, there must be a reasonable expectation of success. Finally, the prior art references must teach or suggest all the claim limitations. These criteria are not met in the present case. There is no suggestion or motivation in either Yamada or Niskanen for changing the material of both the body and the sole plate in Yamada, and molding the sole plate entirely out of one material and then bonding it to the body rather than attaching it with screws. Yamada describes bonding as one of many alternative attachment techniques, including screws, and does not suggest that one is better than another. There is also no suggestion in the references to make the body of the club

head in Yamada out of a completely different material, specifically ceramic composite material, and this modification appears to be contrary to Yamada's teachings regarding lightening the head weight. There is also no suggestion in the references that any improvement would result from such a modification. Finally, the specific material used to make the sole plate, i.e. glass fiber reinforced PPS, is not taught by either reference.

As further evidence of the non-obviousness of amended claim 13, it is noted that the Examiner in the parent application, who rejected claims directed to the club head itself based on exactly the same references which are applied by the Examiner here, indicated in his statement of reasons for allowance dated April 4, 2005, that "it would not have been obvious to modify any of the prior art references of record to include a sole plate being made entirely of a first material comprising PPS, wherein the body is made of a second material as claimed in order to raise the center of gravity". It is submitted that this statement applies equally to amended method claim 13, and this claim is not obvious in view of Yamada and Niskanen. Reconsideration and reversal of the rejection of claim 13 is therefore respectfully requested.

Claims 15, 16 and 18 depend from amended claim 13 and are distinguished from Yamada and Niskanen for the same reasons, and additionally since these claims define other elements not described or suggested by these references. The Examiner rejects claim 15 simply on the basis that additives are well known in the fiber reinforced plastics art. This is not sufficient to establish a *prima facie* case of obviousness. There is no suggestion in the art of using such a material for a sole plate of a golf club head. Neither of the references cited even suggests making a sole plate entirely out of glass fiber reinforced PPS, let alone such a material with a PTFE additive. There is no motivation suggested by these references for making a sole plate out of such a material, nor any expectation of success or improvement as a result of such a substitution. The prior art references in this case clearly do not teach or suggest this claim limitation. It is noted that the teaching or suggestion to combine references or modify references must be found in the prior art and not only in the applicant's disclosure, for a proper obviousness rejection. Not only is there no suggestion in this case to combine Yamada and Niskanen as the Examiner has proposed, such a combination would not result in the invention as

claimed in either amended claim 13 or claim 15. It is therefore submitted that claim 15 is not obvious both due to its dependence on claim 13 and also since it defines another feature which is completely lacking from the references.

Claim 16 further limits the sole plate material to having an additive content in a particular range. This is also completely unsuggested by the references cited by the Examiner, which do not even suggest the material of the sole plate without additive content, let alone the material with an additive content in the weight percent range claimed in claim 16. The Examiner cannot simply dismiss claim elements as obvious on the basis that they are "within the purview of the skilled artisan", with absolutely no basis or teaching in support of such a rejection. Even if a skilled artisan knew of such materials, there would have to be some reason suggested by the art to select them for the specific application defined here. No evidence of such a reason or motivation has been provided by the Examiner, and the obviousness rejections of claims 13, 15 and 16 therefore do not meet the criteria for establishing obviousness as set forth in MPEP 2142.

As regards the rejection of claim 18, neither reference suggests forming posts integrally with the sole plate and projecting from the inner face of the sole plate and press fitting the posts into mating engagement with bores in the body. The Examiner contends that Niskanen shows the body formed with protrusions serving to receive the bolts which project from the sole plate, and contends that the bolts may be considered to be "posts" as claimed in claim 18. This is incorrect. Amended claim 18 defines forming of projecting posts integrally with the sole plate, and press fitting the posts into the bores in the body. This is clearly completely different from the attachment method in both Yamada and Niskanen. Both of these references have holes in the sole plate through which bolts or screws are engaged and then threaded into bores in the body.

There is nothing in the teachings of Yamada, Niskanen or any other cited reference to suggest replacing the separate bolts or fastener screws of these references with integrally formed posts. Clearly, manufacture of a sole plate with integral posts is more difficult and expensive than the manufacture of a generally flat sole plate with

openings through which metal bolts or fastener screws can extend. This is not simply an alternative fastener arrangement but is completely different from the prior art fastening of sole plates with fastener screws. The reason for adopting this technique in the present invention is to avoid adding weight to the sole plate, which is not suggested as a desirable characteristic by the teachings of either Yamada or Niskanen. One skilled in the field would not see any advantage in making such a substitution, absent any motivation suggested by the prior art. Neither of the cited references suggests the desirability of raising the center of gravity of a club head. Claim 18 defines the mating, press fit engagement of the integral posts in the club head bores, which is clearly completely different from the threaded engagement between the bolts and bores in both Yamada and Niskanen. It is therefore submitted that claim 18 defines additional subject matter which is also not obvious in view of these references.

It is submitted that claims 13, 15, 16 and 18 are all clearly distinguished from Yamada and Niskanen, and reconsideration and reversal of the claim rejections based on these references is respectfully requested.

In paragraph 3 of the Office Action, claims 13, 15, 16 and 18 are also rejected as obvious based on Yamada, Niskanen, and Murphy et al. (US 2001/0001093). The Examiner contends that Murphy teaches injection molding of a sole plate out of plastic material. The arguments above directed to the rejection of these claims based on Yamada and Niskanen alone apply equally to the rejection in paragraph 3. The teaching or suggestion of making a golf club head as defined in amended claim 13 is also completely lacking from Murphy. Murphy simply defines making a sole plate out of injection molded polymer, not injection molding a sole plate of glass fiber reinforced PPS. This particular material is neither taught nor suggested in any of the three references. In Murphy, the sole plate and hosel are molded in one piece, which is also completely different from the first two references. Murphy teaches the desirability of making the sole plate of a material having a density greater than that of the composite material from which the body is formed (see paragraph 9). This is also completely different from the present invention, where the sole plate is made from a material lighter in weight than the material of the body. Murphy discusses the use of the sole plate and

hosel integral piece 43 to "lower the center of gravity" (see page 2, paragraph 27, last sentence). Again, this is the reverse of the present invention.

There is nothing in the combined teachings of Yamada, Niskanen and Murphy which would motive one skilled in the field to make a golf club head in the manner claimed in amended claim 13. Specifically, these references, taken together, would not motivate one skilled in the field to injection mold a body out of ceramic composite material and injection mold a sole plate entirely out of a second material lighter in weight than the body material, so as to raise the center of gravity. None of the references teach a body of a first material and a sole plate made entirely of a second material lighter in weight than the first material. In fact, Murphy teaches completely the reverse of such an arrangement and teaches away from the claimed method, if anything. It is therefore submitted that amended claim 13 is not obvious in view of Yamada, Niskanen, and Murphy, and reconsideration and reversal of the rejection of this claim is respectfully requested.

Claims 15,16 and 18 are distinguished from Yamada, Niskanen and Murphy for the same reasons as given above in connection with the rejection of these claims based on Yamada and Niskanen alone. The features of these claims lacking from the first two references are also completely lacking from Murphy. Reconsideration and reversal of the rejection of claims 15,16 and 18 based on these references is therefore also respectfully requested.

In paragraph 4, claim 17 is rejected as obvious based on Yamada and Niskanen when combined with Ashcraft (or Yamada, Niskanen and Murphy combined with Ashcraft). Claim 17 depends from amended claim 13, and the features of claim 13 lacking from Yamada, Niskanen and Murphy are similarly lacking from Ashcraft. Claim 17 is distinguished from the references cited in paragraph 4 for this reason. Additionally, there is no motivation suggested by the teachings of these references for modifying Yamada as the Examiner has proposed. Reconsideration and reversal of the rejection of claim 17 is therefore respectfully requested.

It is submitted that the foregoing amendment and argument deals with all outstanding grounds of objection and rejection, and claims 13, 15, 16, 17, and 18 should now be allowable. Early notice to this effect is earnestly solicited. If there are any outstanding objections or rejections which could be dealt with by means of a telephone interview, the Examiner is encouraged to contact the undersigned representative.

Respectfully submitted,

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Notice of References Cited	Application/Control No. 10/327,584	Applicant(s)/Patent Under Reexamination CALDWELL ET AL.	
	Examiner Sebastiano Passaniti	Art Unit 3711	Page 1 of 1

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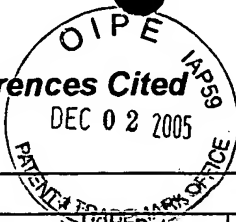
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NON-PATENT DOCUMENTS

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Notice of References Cited



Application/Control No.

10/327,584

Applicant(s)/Patent Under
Reexamination
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Examiner

Sebastiano Passaniti

Art Unit

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Page 1 of 1

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Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				Complete if Known	
				Application Number	10/327,584
				Filing Date	12/20/2002
				First Named Inventor	Bruce G. Caldwell
				Group Art Unit	3742
Examiner Name	Unknown <i>PROSECUTOR</i>				
Sheet	1	of	1	Attorney Docket Number	8201-PA02

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Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
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